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ABSTRACT

This paper focuses on the political economy of public education in depressed rural regions of the United States. The general hypothesis explored is that occupational composition of the community workforce and associated educational requirements for employment are significant elements of the sociopolitical environment for public education. Part I examines case study material on Pulaski County, Kentucky: employment patterns, public schools and related educational resources, adult population characteristics, financial support for schools, academic achievement, the dual system of an independent municipal district within the county district, potential impact of consolidation of the independent and county districts, direct support for public education by employers, local supply of technically proficient workers, and employment policies of local employers. The main finding is that major employers with needs for more highly educated workers tended to actively support improvements in the public schools. In Part II, 529 parents of high school seniors in 5 Kentucky and Virginia schools were surveyed concerning their educational attainment, occupational status, and participation in school support activities. Findings suggest that having a high proportion of well educated workers in a community reinforces support for good quality schools, and that this support comes through the overt direct participation of educated parents. Second, benefits of more and better education are mostly lost to a community when local employment opportunities for the educated are not available. Part III discusses implications for rural development policy. Contains 21 references. (SV)

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Exploratory Studies of Occupational Structure of the Workforce and Support of Public Education in Rural Appalachia

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University of Kentucky

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Exploratory Studies of Occupational Structure of the Workforce and Support of Public Education in Rural Appalachia

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INTRODUCTION

The importance of education to economic development—it has never received more attention in political debate than in the last decade. But the debate has been frustrating. Like the weather, many people talk about it, but no one seems to know what to do about it, at least not within the context of a democracy. We have long known about the high aggregate rates of return to human capital investments. However, we have only recently become cognizant of the fact that classrooms are major battlefields in the wars of international and regional competition which involve both poor and rich protagonists. Regrettably, the waging of the war involves much more than the tactics of utilizing the economic resources which have already been mustered on educational battlefields. It includes problems of supplying the resources with which to do battle—motivated and appropriately prepared teachers, supporting cadres of parents demanding good instruction and all of the other requisites of an efficient process of human capital formation—and organizational systems for their effective use. To supply these resources involves an intensely political and social process in which the economic stakes are very high. But, it is one which has functioned poorly in some countries and regions, even in some parts of affluent regions such as inner city ghettos and backward rural areas. Test scores continue to decline and dropout rates continue high with only halting and sporadic public efforts to take remedial action. Such efforts must be dependably forthcoming if the war is to be won. How to elicit dependable public support is the issue.

The focus of this paper is on the political economy (or economic politics) of public education in depressed rural regions of the United States. The general hypothesis which is explored is that the occupational composition of the community workforce and associated educational requirements for employment have significance as elements of the socio-political environment for public education. The personnel requirements of employers of a community affect the articulated public demand for good schools, that is, schools which are adequately financed and efficient in building human capital.[1] Employers with limited requirements for educated personnel have hypothically limited demands for high quality schools.

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[1]A more complete and general conceptual framework is outlined in an earlier paper, Eldon D. Smith, "Reflections on Human Resources in the Strategy of Rural Economic Development," The Review of Regional Studies, 19(1) Winter 1989, 13-22. The concept of development as a problem of strategy is drawn from Albert Hirschman, The Strategy of Economic Development. New Haven: Yale U. Press, 1958. Other sources of insight include, especially, an unpublished paper by Rufus Hughes, Jr.(U. of Tennessee Department of Agricultural Economics and Rural Sociology, 1956), the main ideas of which were included in his Low Incomes in Southern Agriculture: Population Adjustments. Ph.D. Dissertation, University of Chicago, 1959. The work of H. Dudley Plunkett and Mary Jean Bowman, Elites and Change in the Kentucky Mountains, Lexington: University of Kentucky Press, 1973, complements the Hughes formulation.

Since this hypothesis involves a complex set of relationships, the analysis is narrowed to two central foci. The first is treated in Part I and analyses through a single community case study policies of major employer establishments[2] which have varying demands for personnel with superior levels and qualities of schooling. The second focus relates to the effects of the community and work establishment occupational environment, as well as parent occupational classes and their own educational attainment, on efforts to support enhancements of the quality of public schools. This analysis is in Part II. Telephone survey data from parents of seniors in five high schools in Appalachian Kentucky and Virginia provide the medium for analysis.

Both Part I and Part II represent very exploratory excursions into a totally unexplored subject-matter. As in any exploration of uncharted intellectual terrain, many difficulties have been encountered. The case-study material in Part I provides highly suggestive evidence of relationships that may or may not be generalizable to other communities of similar size and other characteristics. It serves the purpose of a pilot study, that of suggesting approaches to a broader study. The material in Part II covers a broader spectrum of communities and a relatively large sample of parents of high school seniors. However, it was necessary for financial reasons to have recourse to supplementary published data to categorize the working environment of the parents. The limitations of these data are apparent, and a significant possibility of invalidly rejecting some hypotheses is the result.

In the analysis in Part I we assume that the actions taken by employers reflect primarily (1) the perceived long-term economic interests of these major employers in enhanced supplies of well-schooled workers, and (2) their interests in having a community environment which will be compatible with the interests of, especially, in-moving technical, professional and managerial workers. For in-moving personnel with school age or pre-school age children, anecdotal evidence suggests that high quality public schools is a critical concern and, hence, is a major interest of employers with significant complements of educated personnel.

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[2]A major employer is defined for purposes of this study as one with 100 or more total employees.

Part I

OCCUPATIONAL STRUCTURE AND MAJOR EMPLOYER SUPPORT FOR PUBLIC EDUCATION IN PULASKI COUNTY, KENTUCKY

The Specific Hypothesis

The specific hypothesis explored in this part of the paper is that establishments with requirements for large numbers of relatively highly-trained personnel will adopt policies which encourage in various ways support for good local public schools. The policies represent a rational attempt to increase the local supply of developed human capital as well as the supply of in-moving managerial, technical and professional personnel when it is not feasible to recruit them locally.[3] And if this is true, there is an important public sector externality of employment creation programs. Public support for good schools depends, in part, on the value to employers of having a large local supply of well-schooled people. Having adequate supplies of either (1) people with requisite directly productive capabilities and/or (2) the intellectual foundation for learning them at low cost after employment will significantly enhance profitability of such firms.

The relevance of the foregoing hypothesis depends on a further assumption. It is that development of employers with relatively large complements of educated personnel is feasible, i.e., that public costs per job created of recruiting such employers are not unacceptable if viewed in a long developmental time span context. This is also explored in this case analysis (Part I).

The Institutional Context

The Kentucky Educational Reform Act of 1990 has mandated several aspects of fiscal and personnel policy formerly delegated almost completely to local districts and related agencies of local government(Kentucky Legislative Research Commission, 1990). Despite a preponderance of fiscal support from state government and provision for state intervention in extreme cases of corruption and ineffective administration, the operations of local districts were predominantly dependent on actions by elected local officials prior to the 1990 Act.

The provisions of the Act are sweeping in their scope, and delegation to local boards of education and their employees is subject to checks and constraints. However, most day-to-day decisions and local policy will still be subject to local action. Indeed, provisions for site-based management of individual schools represents an attempt to more intensively involve citizens in the management process. Presumably, this assumes that citizen interest and support will be greater and that insights into unique local problems have value and can be more effectively mobilized in a somewhat decentralized management system. While appropriate checks and balances are required

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[3]This includes executives, technical and professional personnel with experience elsewhere in the companies or public service organizations of which local establishments are subsidiary units. Those with school age or sub-school age children are likely to be particularly concerned with the quality of schools in communities where they are assigned or in which they will live if employed.

to take account of the possibility of serious malfunctioning of the system of delegated decision processes, the perspectives of those who participate in them will, accordingly, have a significant bearing on educational outcomes. Hence, the subject of this paper is still germane to development of good schools.

Especially in the most economically disadvantaged Kentucky districts, scholastic performance as measured by dropout rates and standardized achievement test scores has been scandalously inadequate overall. However, it has been quite variable, with a few districts in the regions of generally low performance achieving a very high level of excellence insofar as the standardized measures capture it. In particular, so-called independent districts have been maintained which are completely autonomous from the consolidated county districts, levy their own taxes and govern their own system. On average, fiscal support and performance levels have been somewhat superior in these independent districts. Most of those with secondary schools are located in larger municipalities. In counties with such districts, the residual population of students is mainly from rural farm or rural nonfarm homes and mainly transported by school buses to county system schools. A single consolidated senior high school is usual and round trip school bus travel of up to 35 miles per day is not exceptional for students in more remote parts of larger districts such as Pulaski County.

The institution of the independent district affects several factors. Usually they are financially better-supported and have a heavier concentration of better-educated and more affluent families. In-moving and native affluent families have the opportunity to access these better-supported and better-performing schools while either living in the municipal district or living in the county district. To county district residents it requires payment of a modest tuition and their own transportation costs if they transfer their children to the municipal independent district. Lower real estate and other taxes often compensate for a significant part of the added cost. The specific fiscal arrangements are negotiated between the respective districts.

Anecdotal evidence suggests that this combination of school systems is a somewhat attractive feature to prospective employers. Those who contemplate moving education-sensitive key management and technical personnel to the community are able to assure employees of satisfactory schools for their children even in regions with generally low standards of excellence.

Obviously there is a somewhat different socio-economic environment in many of the independent districts than is found in the more rural county districts. But another difference of possible importance is that the parents of transferred students have little <u>personal</u> reason to be concerned with efficient school governance, financial support and instructional quality in the county system.[4] Whether, in fact, this has an <u>important</u> impact on school system governance and support for high quality education in county districts is not altogether clear, and is examined in a later section.

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[4]This is not to say that executives of major employers in their corporate management role have no reason to be interested, and indeed, several employers have taken a very active part in encouraging their employees to assist in improvements of public education in both county and independent districts, as later information will evince.

Pulaski County, Kentucky

Pulaski County, the illustrative case study site, is located about sixty miles south of Lexington in the foothills of the Cumberland Plateau. Its county seat, Somerset, is at the junction of U.S. Highway 27 and the Cumberland Parkway, an east-west state highway which provides access to both I-75 and I-65. It is mostly four-laned and with limited access. Adequate state roads provide access to other counties to the west and southwest. Population of the county was 49,981 according to 1990 Census estimates, growing from 34,403 since 1960.

Employment Patterns

Small farm agriculture contributed 30 percent of total residential employment in 1960, manufacturing 16 percent, using the very inclusive definition of manufacturing of the U.S. Departments of Labor, Commerce, etc. By 1980, agriculture had declined by 41 percent and manufacturing employment had almost doubled, approaching 4,000, most of the increase occurring during the late 1960s. Comparable Census data for 1990 are not yet available, but manufacturing employment by place of employment remained essentially unchanged. Total covered employment in all establishments, including persons commuting from other counties, increased from roughly 12,000 to 17,500 over the same decade.[5]

Since there is no coal-mining in the county, it is evident that growth since 1970 has been primarily in the services-producing sector. Indeed, Somerset community has become a major regional service center. Of particular significance is the medical services category, which has increased from 144 employed in 1960, to 932 in 1980 (Census) and 2,791 in 1987(County Business Patterns). The regional hospital, alone, reported employing about 550 in December 1990.

Public Schools and Related Educational Resources

Consolidation, mainly in the 1960s, merged all but tiny Science Hill Independent District (260 pupils;grades K-8, 1988-89) and Somerset (1,550 in K-12, 1988-89) into Pulaski County District (6,300 pupils) (Office of Internal Administration, Kentucky Department of Education, 1990). Jurisdiction of Somerset Independent coincides with municipal corporate boundaries. Enrollment in the 1990-1991 school year was 1,768, inclusive of 216 tuition-paying transfer students, about half in grades 9-12. Tuition is $500 per student and private transportation is required for transferees.[6]

Somerset Independent emphasizes a college preparatory program, while Pulaski County Senior High offers vocational agriculture and other vocational courses which are emphasized somewhat more than in Somerset Independent. This is understandable in view of the 76.5 percent of Somerset

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[5]Sources are, respectively, 1990 Census of Population, County Business Patterns (U.S. Department of Commerce) and Statistical Services Section, Department of Employment Services, Kentucky Cabinet for Human Resources.

[6]Data on transfer students from oral report by Mr. Malcom Smith, Office of the Superintendent, Somerset Board of Education, February 6, 1991. Tuition is transferred to the County District while state supplied per-pupil revenues are transferred to Somerset Independent.

students who were in 1988-89 entering college. By contrast, less than half of Pulaski County's students were college-bound.

Both secondary schools have cooperative arrangements with the Somerset State Vocational-Technical School for some vocational instruction. That institution is supported and administered by the Kentucky Department of Labor. It has programs which generally supplement secondary school offerings in the development of directly productive skills. The vocational-technical school programs are applicable to a broad range of occupations and enterprises.

Somerset Community College is a part of the University of Kentucky and was established during the middle 1960s. The Community College offers freshman and sophomore level courses, credits for which are transferrable to the baccalaureate programs on the Lexington campus if they fit curriculum requirements for the major field. It also offers two-year associate degree programs for registered nurses, computer programmers and a variety of other specialties. High school students with appropriate ability and preparation may take courses at the college and have them credited both to their high school program and toward meeting requirements of Somerset Community College's programs.[7]

While Somerset and Pulaski County have institutions which provide a depth and scope of educational opportunities which are inferior to most major metropolitan areas, they far exceed those provided by most rural counties. Hence, generalization of the suggestive evidence from this case study to other rural counties is not necessarily appropriate.

Adult Population Characteristics

Differences in educational characteristics of adults in Somerset and the remainder of the county have probably narrowed since 1980. Growth of population has occurred in subdivisions which have not been annexed and in open country areas. However, 1980 Census data show substantial differences (Table 1). Above half of Somerset's over 24 year-old population had finished twelve years of school, and almost one-fourth had one or more years of post-secondary education. The remainder of the county had only 42.7 per cent with twelve years completed, and 12.7 percent with one or more years of post-secondary education, the latter only about half as high proportionately as Somerset. Correlated with the higher level of educational attainment in Somerset was a higher median family income (about 8 percent higher), and per capita income (13 percent higher), indicating a somewhat superior ability to pay for good schools. School age population (age 5-19) was quite similar, 24 per cent in Somerset and 26 percent in Pulaski County.

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[7]Several developments in the region, and especially in Somerset have been noted by a reviewer. One is the regional center for economic development and educational enrichment programs. Congressman Hal Rogers, of the Fifth Congressional District has been instrumental in some of these initiatives. These are not detailed here because they would appear to have no direct bearing on the main focus of this report.

Table 1. Years of School Completed, Persons 25 Years of Age and Over, 1980

Years Completed	Somerset		Pulaski County Rural Areas	
	Number	Percent	Number	Percent
8 or less	2,518	37.7	9,207	44.9
9-11	813	12.2	2,552	12.9
12	1,753	26.3	6,134	29.9
1-3 Years College	761	11.4	1,497	7.3
4 years Coll. or more	826	12.3	1,114	5.4
Total	6,671	100.0	20,504	100.0
12 or more	3,340	51.1	8,745	42.7
1 Year College or more	1,587	23.8	2,611	12.7

Source: Bureau of the Census. Census of Population 1980--General Characteristics.

Table 2. Revenue Per Student in Average Daily Attendance, Fiscal Year 1988-89, By Source.

	Amount	Percent
Pulaski County District		
Local Revenue (All Sources)	$355.83	13.0
State	$2026.91	74.0
Federal	$355.30	13.0
Total	$2738.04	100.0
Somerset Independent District		
Local Revenue (All Sources)	$921.43	25,0
State	$2369.80	66.5
Federal	$385.55	10.5
Total	$3676.53	100.0

Source: Office of Internal Administration. Profiles of Kentucky Schools--Fiscal Year 1988-1989. Frankfort: Kentucky Department of Education.

Financial Support for Schools

Total revenue per student in average daily attendance was in 1988-89 substantially lower in Pulaski County than in Somerset District (Table 2). Revenue per student was lower by $938, or 26 percent, of which $566 was attributable to lower local revenues.

In Somerset, locally appropriated revenues were almost 25 percent of total revenues, nearly identical to the state average. However, in Pulaski County the local contribution was only 13 percent. The so-called Local Financial Index, a very crude and possibly biased measure of financial effort relative to ability to pay, indicates that Somerset ranked relatively high, 26th highest among 179 Kentucky districts, while Pulaski ranked 153rd, in the lowest 14 percent.[8]

Correlated Differences in Scholastic Performance

It is important to avoid a simplistic interpretation of differences in retention rates of entering grade nine students and differences in average test scores. They are not attributable solely to differences in quality of instruction. During the 1960s and 1970s several studies, including the so-called Coleman Report (Coleman, et al, 1966), and a study by Jenks (1973), put family and community environmental factors at the center of the stage in explaining differences in scholastic achievement. And the district financial contributions relative to incomes of people in a district may be more a reflection of differences in community and family values and expectations than an indication of the quality of instruction. Indeed, several informed citizens in Somerset District contend that individual elementary schools and possibly the junior high schools in Pulaski District have programs approximately equal in quality to those of Somerset schools. This is why assessment of instructional program excellence among communities and districts using student performance criteria is fraught with difficulties.[9] However, contrasts in test scores and rates of graduation provide some insight into the large differences in performance which presently exist. These are shown in Table 3.

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[8]The Financial Index is a ratio of combined local revenues from all sources to assessed value of all real property in its jurisdiction. It is designed to indicate local financial contributions relative to ability to pay. Conceptual flaws include the fact that flows of income across tax jurisdictions which are in no way connected with property ownership are not captured by the measure. Tax valuation appraisals, as has been reported in a 1990 series of articles on public education by the Lexington Herald-Leader, and more systematic data supplied by the Department of Real Property Valuation show that appraisals are extremely variable and most counties have not been in compliance with state mandates for appraisal at 100 percent of fair market value. Therefore, comparisons of financial indices among districts may provide seriously distorted evidence of comparative real financial effort.

[9]A feature of the Kentucky Reform legislation is that it mandates evaluation of progress in improving instruction through use of standardized tests. Some opinion supports the view that this will have to be abandoned in favor of evidence of excellence in instructional technique, insofar as this is understood, and indications of intensity of effort on the part of instructional and administrative staff to compensate for deficiencies in extra-school environment, such as programs of remediation. Implicit is the assumption that the output of learnings from varying levels and classes of resource inputs is different among school populations owing to differing complementary family and social environmental "inputs", i.e., operating on a differing production function with respect to school inputs. Performance on standardized tests, and graduation rates undoubtedly reflect in addition to excellence of instruction (which over the long run could be affected by salary incentives), supportiveness and knowledge levels of parents, peer group re-enforcement, and general community values and expectations.

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Clearly, test score achievement is very different between districts. While the index of local financial effort in the Somerset District was above average for the state, its CTBS scores were very superior, among the highest 15 percent of all districts. This suggests very efficient use of funds and/or superior community and family environment.

Table 3. Tenth Grade Achievement Test Scores and High School Graduation Rates for Pulaski County and Somerset Independent Districts.

District	1990 CTBS Scores:			Graduation Rate** (Percent)
	Grade 10	Composite: Gr. 3,6,7,10	Rank in State	
Pulaski County	52.4	51.9	130/179*	67.45
Somerset Indep't.	61.0	58.1	26/179*	75.32

*Denominator is total number of districts. Numerator is rank for grade 10. From: Louisville Courier Journal, September 5, 1990.
**1988-89 School Year. Source:Office of Internal Administration.
Profiles of Kentucky Public Schools 1988-89. Frankfort: Kentucky Department of Education.

Pulaski's test score performance was in the lowest one-fourth of all Kentucky districts, but the explanation of this lower level of performance is far from apparent. If social and family environment was not supportive of educational achievement, it is possible that the actual instructional quality may have been much more nearly comparable than the test scores and graduation rates would suggest.

It is evident there was significant employment growth from 1960 onward, much of the manufacturing growth occurring in the 1960s. Significant services-producing employment growth is of more recent origins, much of it in the 1980s decade. A mail-in survey of long-term teachers in the Pulaski County system was conducted in December 1990 and January 1991. Responses suggest that interest of parents in good education had increased over the last ten years, 25 percent of teachers reporting "quite a lot" and 50 percent reporting "slightly."[10] However, in the aggregate, there is no evidence that this had been translated into support for better schools prior to the action by the Board of Education in 1990 to levy additional local taxes.[11]

[10]Only about one fifth of teachers returned completed questionnaires. Whether those reporting were representative of all teachers is obviously uncertain.

[11]New levies have raised taxes on real estate, automobiles, and cable television service in the Pulaski County District. These actions were largely unopposed, but whether this represents a shift in attitudes of the electorate or awareness of the mandate of the Educational Reform Act is not evident. Real property levies were raised from 13.9-35 Cents per $100 assessed value. Motor vehicle taxes were raised from 13.8-45 cents(Source: Oral report, November 28, 1990, Mr. Bert Minton, Superintendent). The property tax levy increase was five cents above the state-imposed 30 cent minimum per $100 valuation or equivalent in other taxes. Mandated re-assessments at 100 percent of fair market value will also increase revenues. Assessed values were,

The effect of employment growth on support for the Somerset Independent district is difficult to assess. If prior to 1988-89 there was any favorable impact in either district, it seems likely it was confined primarily to Somerset Independent District where the concentration of adults with more education and higher family income is highest. Test scores of Somerset are actually above the levels maintained in many of the more affluent metropolitan districts. To do this in what was 30 years ago mainly a county seat town in a very poverty-plagued agricultural area is a considerable achievement.[12]

The Probable Impact of the Independent District on Public Support For Education in the Pulaski District

Differences in apparent levels of financial support for the two districts and the institutional structure which permits transfers at relatively modest cost have been noted. However, the central question remains. Is the dual system responsible for low levels of support in the Pulaski County District and the county districts of other counties with similar dual systems?

Political support for candidates running for election to the Somerset Board of Education is not directly affected by the votes of parents of the tuition-paying transfer students. They are not eligible to vote in Somerset District. At the same time, these parents of over 250 students are obviously supportive of high quality education. Otherwise, they would not pay tuition and tolerate the inconvenience and cost of private transportation. Therefore, it would be somewhat surprising if they did not make contributions of services and money to support "progressive," education-concerned candidates for seats on the Board of the Somerset system which their children attend.[13] So it is also with school support organizations, as well as informal intervention to deal with perceived problems

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respectively, 84.6, 95.6, and 86.8 percent of sales value for residential, farm and commercial property in 1990(Source:Orally communicated preliminary estimates from Department of Real Property Valuation, Kentucky Revenue Cabinet). Later estimates of 1989 residential and commercial property valuations indicate that for the residential properties of Pulaski and Somerset districts sold during that year, median assessed valuations were 93.3% and 89.9%, respectively. In both districts commercial property was appraised at a median of 100.0% of sales value, although the number of sales was not large and the coefficient of dispersion was 11.4 and 9.5 percent, respectively. Farm property was not reported. (Source: Letter dated August 5, 1991.)

[12]A recent review of literature on per pupil costs and learning rates suggests that the smaller pupil population size of Somerset Independent District was not necessarily a handicap. Cited is evidence that over-all instructional quality is not necessarily improved with increases in size, despite the broader array of course offerings in larger schools(Williams, December 1990). Several studies were referenced, among them a report by Goodlad (1984) who concludes that "It is not impossible to have a good large school; it is simply more difficult...I would not want to face the challenge of justifying a senior, let alone junior, high of more than 500 to 600 students (unless I were willing to place arguments for a good football team ahead of arguments for a good school, which I am not...Although I have set top limits for school size at 800 students for the secondary phase,...my preference is for 600..."(pp.309-310, 338). While less specific in terms of student numbers, the research on school district size, according to the author, is not supportive of very large districts. Thus, the higher performance levels in Somerset District may evince both the effects of a more educated and affluent population and the advantages of moderate size.

[13]By "progressive" candidates and individual citizens we refer to those who are supportive of measures which are viewed as being likely to improve some type of learner outcome. References to scholastic achievement measures and rates of retention/graduation reflect the views of the authors that these outcomes are of primary importance. However, others, including skills in interpersonal relations, the arts, and athletics are recognized as potential complements to scholastic learnings. "Good schools" will refer generally to those who achieve desirable outcomes.

confronted by their children! While such individual actions may relate to only a specific student, they may still have more general salutary effects on instruction in the system through sensitizing teachers and administrators to parent concerns.

In evaluating the probable impacts of such transfers, it is important to recognize one political factor. While transfer students comprise less than one-eighth of the student body of Somerset Independent District, a few education-concerned, "activist" parents may exert a much more than proportional impact on the system and its support. A few explanatory comments may be appropriate.

Obviously, if parents are only concerned about good schooling for their own children, what is a gain to the Somerset system is a loss to the Pulaski County District. However, support for good schools may be partly motivated by altruistic concerns for general public welfare and equality of opportunity. Moreover, even if their interests are totally family and personally oriented, the socio-political effects of decisions to transfer their children or not to transfer them would not be symmetrical. Tuition-transferees would comprise only 3.2 percent of the current pupil population of Pulaski County Public Schools if they had not transferred. They comprised 12 percent of Somerset enrollment as of January 1991, clearly enough to make a significant impact if their parents were heavily activist in orientation. Thus, the number of students transferred and the relative size of the two districts become relevant to predicting the impact of transfers on the independent and consolidated county district, as well as the probable impact of the merger or consolidation of the two systems.

The effects of transfers of tuition-paying students to independent districts on the political, economic and social support base of the associated county schools has been noted. However, these effects also depend on the educational, age, and economic status of families residing in the respective districts. In particular, those who have higher levels of education and have experienced its economic value probably tend to prize good schools more than those who have less educational background. Data presented in Part II of this report support this conjecture. And if this is true, when employment grows the significance of the independent district structure will depend on the composition of the associated population growth. The conclusions of Plunkett and Bowman (1973) are that the so-called "educated elite" classes are more demanding with regard to educational services than the less-educated non-elites. However, they also note that the in-mover "elites" have distinctly higher expectations than native populations with similar education status.

It is apparent that the in-movers reduce the short-term positive impact of employment growth on employment opportunities for native residents. Indeed, other studies have shown that this and retention of workers in the community who would otherwise have found jobs in other areas combined to essentially eliminate reductions in poverty when growth in employment occurred (Larson and White, 1986). However, the juxtaposition of the views of native residents with those of these in-mover elites may be the catalyst for deliberate re-examination of the adequacy of local educational systems.

While the higher expectations of in-movers is probably important, it may be no more important than the differences in ideas and education-related perspectives which they infuse into the community. These differences may result from exposures to schools with modes of operation which are alien to deeply entrenched, and largely unchallenged traditions often found in rural areas. In communities

which have historically experienced heavy out-migration and which have had relatively small proportions of in-migrants, homogeneous and tradition-bound norms are apparently common according to Plunkett and Bowman.

It appears that a high proportion of the recent growth in educated and affluent population in Pulaski County is in new, relatively affluent subdivisions and open country, non-subdivision locations outside of the Somerset Independent district. Few, if any of these sub-divisions have been annexed. The higher proportions of more educated and affluent people in the modern and education-demanding establishments which have recently entered the community will further increase proportions of more-educated adults in the areas outside of Somerset. At least this will be true unless contiguous subdivision areas are in the future annexed.

While 1990 Census data are not yet available, it seems likely that growth in the past decade may have increased the proportions of educated adults in Pulaski County District relative to Somerset. It is also likely that leadership with interests in good quality schools may continue to grow (1)if more employers with demand for educated personnel continue to enter the local labor market and (2)if established employers of this kind expand. Unless annexation incorporates new subdivisions into the municipal independent district, this may importantly increase the complement of voters in the Pulaski County District who have strong interests in improved quality public education.

Potential Impacts of Consolidation

Several Kentucky counties with high growth rates maintain county-wide consolidated districts (or have consolidated high schools and one or two independent districts with only elementary grades). Contiguous Laurel County (London), Montgomery County (Mt. Sterling) and Rowan County (Morehead) are among those in Appalachia. How would consolidation into a county-wide district affect the base of support for good schools in the Pulaski County District? Would the assumed base of progressive leadership provided by a population of educated adults be materially increased relative to the existing Pulaski county District?

If this had happened in 1980 the changes would have been small. The proportions of people with high school diplomas or more would have increased from 42.7 in areas outside of the Somerset District to 44.5 percent; those with one or more years of college would have increased from 12.7 to 15.1 percent.[14] However, it should be emphasized that the result could have been quite different if additions to the workforce had been comprised of much higher proportions of educated people. And this increase in proportions of educated people appears to be likely in the future if the services sector continues to expand and manufacturing plants are modernized. In fact, the newest manufacturing establishments have practically no employees without high school equivalency or above, and the same is true of financial services and medical services areas which have been expanding very rapidly.

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[14]In the contiguous Laurel County consolidated district (only one very small independent district, Grades K-8) the Local Financial Index was only slightly above that of Pulaski County District. Average daily attendance was over 92 percent of the combined ADA of Pulaski and Somerset districts and the urban population of the municipality of London is fairly similar.

Direct Action By Employers in Furtherance of Public Education

Prior to the most recent three or four years, the manufacturing sector in Pulaski and other counties in the region had been rather uniformly labor-intensive. A high proportion of workers fell into the machine operators and materials handling category which had required little education. The management, administration, professional, technical and paraprofessional categories comprised an even smaller proportion of the work force than the Kentucky coal-mining industry with its minuscule 10 percent (Kentucky Cabinet for Human Resources, 1983).

Disclosure of summary data on employment for small numbers of establishments in U.S. Government published data series is prohibited by law. Therefore, only crude estimates are available by S.I.C. for the manufacturing sector. The estimated proportion of employees in occupations usually requiring post-secondary education is accordingly crude. It is based on a combination of survey and published data and covers about four fifths of manufacturing employment(Table 4). It suggests that only about 6.6 percent of Pulaski County manufacturing employees covered by Unemployment

Table 4. Direct and Indirect Estimates of Combined Proportions of Managerial, Administrative, Technical, Professional and Paraprofessional Employees in Selected Major Manufacturing Establishments and Product Classes in Pulaski County.*

Product or Product Class	Total Employment	Approximate No. of "Higher Classes"	Percent of Total Employment
Individual Establishments			
Ceramic Plumbing Fixtures	250	22	8.8%**
Glass Products	207	30	14.5%**
Charcoal	120	26	22.0%**
Refrigeration Equip.	700	42	6.0%**
Clothing	1,000	20	2.0%**
Rebuilt Automotive Parts	250***	22**	8.8%***
Two Digit SIC Product Classes			
Wood Products Except Charcoal	750	51**	6.8%
Food and Kindred Prod.	164	14**	8.4%
Total	3441	227	6.6%

*Excludes two recently-established plants and one which had not yet opened. Totals refer to only the categories or individual plants covered in the tabulation, about 86 percent of manufacturing employees.
**Calculated. All without double or triple asterisks are from private estimates of company personnel or published sources. Two digit classes from: Cabinet for Economic Development. Kentucky Economic Statistics 1990, Frankfort: Commonwealth of Kentucky, 1990.
***Data are approximations from Cabinet for Economic Development. Kentucky Directory of Manufacturers, Frankfort: Commonwealth of Kentucky, 1990, and Statistical Services Section, Occupational Profiles of Kentucky Manufacturing, 1983, Frankfort: Department of Employment Services, Kentucky Human Resources Cabinet. 1985.

Insurance were in those classes of occupations normally occupied by persons with post-secondary education and training. This estimate does not include three recently-established plants with higher technology processes and more demanding qualifications. The reason is that one was not yet in operation and the other two, both of which were surveyed, were still in early stages of operation at the time of interview, December 1990. In any event, the data demonstrate that in the manufacturing sector local demand for highly trained workers was minuscule until these recent plant openings.

The Local Supply of Technically and Analytically Proficient Workers.

Specialized technical skills and analytical capabilities are acquired mainly in post-secondary education and through in-service training. Without a good foundation for further learning, the learning of these specialized capabilities becomes more difficult and costly. A local demand for these capabilities creates a derived or indirect demand for excellence in public education beyond that required for personal discourse, personal financial management, and directly productive skills learned in secondary school vocational courses. Without a local demand for specialized technical skills and analytical capabilities the value of scholastic excellence will not be directly evident by observation within the community. It will not be evident even though essential for those who compete in what has become a nationwide labor market. The national market is, increasingly, one in which rapid adaptation is essential. Advanced learning provides a foundation for continued growth and adaptation of skills to rapid technological advances and changes in competitive conditions. Good primary and secondary education form the foundation for this, the foundation for a lifetime of learning both within the workplace and in educational institutions.

A primary hypothesis in this study is that establishments with limited demand for well-schooled, and, particularly, specialized workers who are not locally available, will have little interest in investing in programs furthering good public schools.[15] Supplies of such specialized workers are normally quite price elastic in major metropolitan labor markets with a full complement of urban amenities. That is, in these large labor markets a given employer has available at costs only slightly above prevailing wage or salary levels a practically unlimited supply of such workers. However, this is not necessarily true in smaller non-metro cities and towns. Thus, the recruitment of more highly-trained and specialized cadres of workers from other areas may be difficult.

This situation has been reported by major employers in Pulaski county. Therefore, the ability to train local workers to good levels of scholastic proficiency (and proficiency in their specialty) may, indeed, be important to efficiency and profit-ability of technologically advanced employers who locate in rural areas. Employers with large demands for workers with advanced skills may find it a profitable investment to join with other major employers in efforts to upgrade instruction in local public schools (and local post-secondary schools).

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[15]It seems to be especially difficult to recruit trained personnel from major urban areas with their broader range of cultural, recreational, and service industry amenities. One personnel manager noted this difficulty, especially in recruiting trained, unmarried people owing to prohibition of sale of alcoholic beverages. Night clubs and other vehicles for social interchange are, accordingly, limited for those without social roots in the community. In economic terms this implies a supply function for trained personnel which is less than perfectly elastic.

The direct value to the schools of a few thousand dollars for computers, a scholarship or two, or sponsorship of extra-curricular activities may be less important than its symbolic value. In attempting to provide such support, employers may subtly communicate to local citizens the fact remunerative employment in their establishments does require good education. It may contribute to awareness of ordinary lay citizens that support of high quality schools is in the interest of their children and, indeed, to the broader community.

Policies of Major Employers Analyzed

Chief Executive Officers or Personnel Managers of eight manufacturing establishments with more than 100 employees, and two selected services-producing establishments of comparable size, were interviewed. The latter were the Humana Lake Cumberland Hospital and the largest bank, First and Farmers National Bank.[16] Key items of data collected included estimated total employment. It also included employment in categories of positions either (1) definitely requiring post-secondary formal education or (2) requiring mental skills and capabilities acquired through informal self-study, in-service training or experience which exceeded normal secondary school graduation equivalency. In addition, they were asked whether the establishment itself engaged in various support activities or encouraged employees to do so. The combined list included 12 categories of activities that would either directly support or encourage community support for good schools. The bank and the hospital were included because it was anticipated they would have higher proportions of education-demanding positions than in most manufacturing establishments normally found in rural communities.[17]

It was an hypothesis that some employers, especially those which depend mainly on unskilled labor, might view the college preparatory emphasis of Somerset Independent as important for purposes of recruiting and retaining key management, technical, professional and paraprofessional employees. Basic literacy and elementary computational skills might be regarded as sufficient for production workers. Therefore, these respondents were asked to separately indicate which activities they supported in the respective school systems. However, it was found with only minor exceptions those who provide any support activities supported equally both systems.

The detailed tabulation of these data are shown in Appendix 1. A graphic summary is shown in Figure 1. The graphic summary provides frequency counts of the number of activity categories

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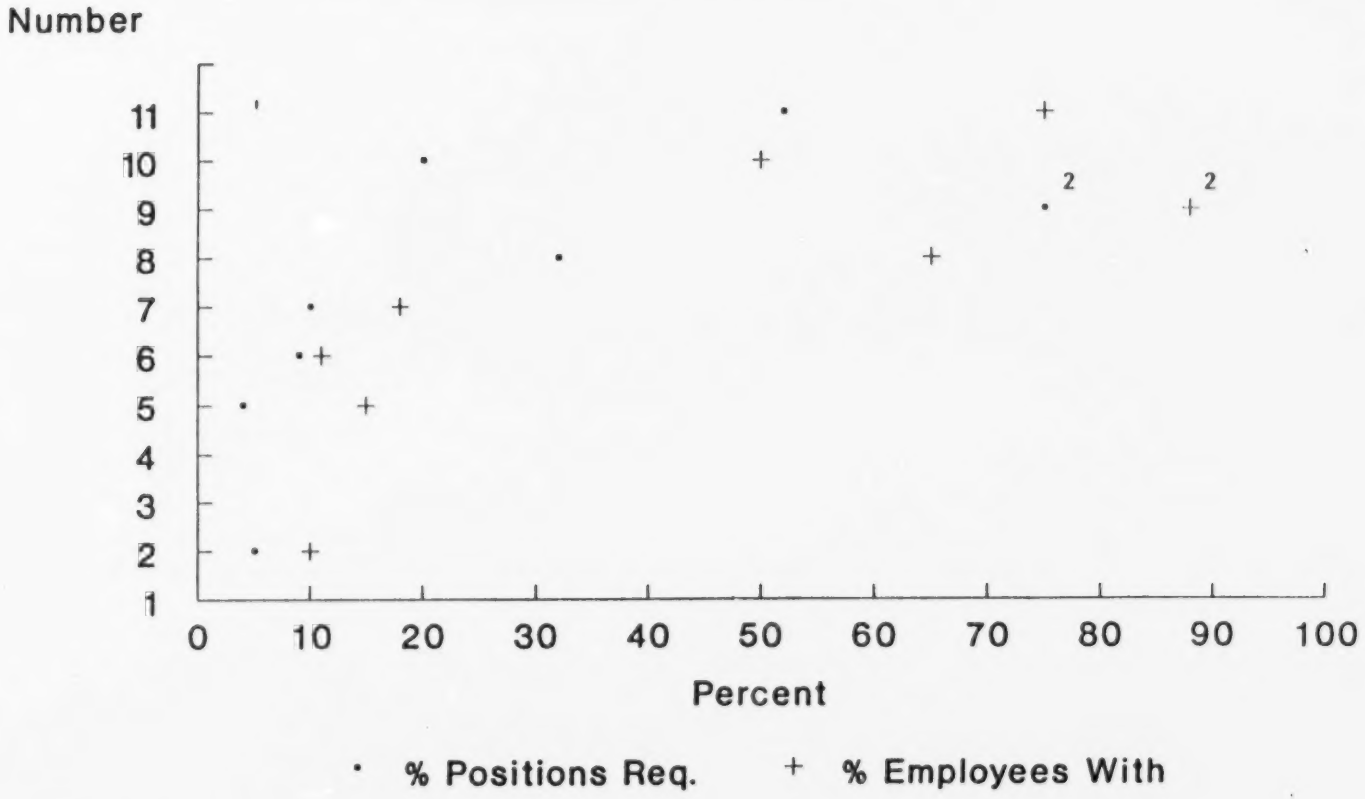
[16]Another manufacturer in early stages of operations was also interviewed and provided valuable information on employment and personnel policies, but had not yet been able to participate in any major way in matters related to this study.

[17]It was discovered after beginning the study that the two most recently-opened manufacturing plants had rather high proportions of employees in these categories, although not as high as the hospital. Both employ an extensive battery of tests of (1)individual ability to conceptualize problems and (2) ability to effectively operate as members of groups in solving problems. The group exercise is designed to cover categories of problems which would call on abilities similar to those which might be encountered in plant operations. Neither accepts applications for production positions from people without a high school diploma or General Education Diploma of high school equivalency. Less than five percent of applicants have been hired, which appears to have communicated to the community that employment requires more than the minimum requirements for high school graduation. Several of the classroom teachers noted in responding to a mail-in survey that these policies and the tuition grants for continuing education of employees have significantly affected public opinion regarding the importance of good public education. Parents with origins outside the region were regarded as being especially interested in the quality of instruction offered.

Figure 1: Number of Activities of Major Employers by Proportion of Employees with Post-Secondary Education and Proportion of Positions Requiring Post-Secondary Education. (1)



[1] Observations are for Pulaski County and/or Somerset Public Schools, i.e., total activities supported in one or both systems.

[2] Includes those hired with understanding that post secondary instruction will be required for retention. See Appendix Table 1.

which were directly or indirectly supported, and those which they encouraged employees to support. Excluded from Figure 1 and Appendix Table 1 are unverified data for two firms for which only indirect information could be obtained. Both reportedly had few "educated" employees and participated in no known school-related activities. However, the unverified data obtained from secondary sources were in both cases entirely consistent with the central hypothesis. Three others were also excluded owing to special circumstances and characteristics.[18]

While this represents only one set of eight employers in a single community, the close correlation between personnel requirements and policies in support of educational excellence is highly suggestive of a more general relationship. It supports the validity of the general hypothesis that the structure of the work force of an employer establishment will be a good indicator of whether the employer will enhance support for quality public education.

In interpreting the data on this chart it is important to recognize that the sample is small and the number of activities in which each firm participated reflects several factors in addition to its own personnel needs. Some of these are listed below.

1. Two manufacturing employers operate under labor union contract which limits desired changes in personnel to upgrade training and technical competencies. However, in both cases the company anticipates changes in technology which will require personnel with more training and higher levels of proficiency in basic subjects. Higher levels of proficiency in basic scholastic skills provides a basis for in-service training in specific technical skills which they anticipate will be required. Attrition
through retirements will also slowly create opportunities for upgrading requirements for new hires.

2. Personnel and community relations policies are in some degree idiosyncratic and specific to local management or policies of conglomerate organizations of which they are a part.

3. In several cases, policies related to primary and secondary schools are part of a more comprehensive policy of enhancing supplies of post-secondary educated personnel. In particular, they support programs to provide technical skills of higher level than those obtainable in secondary schools. Support for programs of the Somerset Community College and tuition grants for company personnel who register for, or complete approved courses in the community college or the Somerset Area Vocational-Technical School are examples. Adequate supplies of well-trained secondary school graduates are a requisite of these post-secondary programs.

4. In every case the rationale for supporting activities related to public education included a reference to the present or prospective business interests of the employer, i.e., a supply of better-

[18]A milk processing plant and a very small oil refinery were excluded because of atypical operations. The milk plant has large components of labor in assembly and wholesale distribution operations. Less than 50 comprise its resident workforce. The refinery has a majority of its work force in wholesale and retail distribution. A third plant was a new auto wheel manufacturer which was not yet producing at planned levels and which planned school support activities, but had not instituted them owing to time-demands of training and other activities associated with early phases of operations. Its employment policies are very progressive and emphasize analytical proficiency and group problem-solving capabilities.

qualified future employees or the expectation that such a supply would be important in the future. No altruistic motives were noted as explanations of their interests.

The variety of these individual policies and factors notwithstanding, association between policies in support of public education and the proportion of personnel in positions which are considered to be education-demanding is quite pronounced. The message which these education support actions convey is not always a direct one. However, it seems apparent that in combination with subsidies for continuing education beyond high school, and support for G.E.D. programs for those without diplomas, several of the major employers are almost certainly creating awareness of the importance of good public education to the people of this county. The absence of opposition to increases of taxes earmarked for public education may, indeed, indicate that public opinion had shifted more drastically than the official leadership of Pulaski County Schools had perceived. The increase to more than 250 percent of the former level is not a trivial amount, even though the absolute amount is still far below the average levels of schools in the state. And it is only approximately equal to the prior levels of the Somerset Independent District. Also significant is the fact that, reportedly, no major employer entered an objection to the school tax increase. This was true even though none of the property of the older large firms was exempted from taxation by industrial revenue bond financing arrangements.[19]

Possible Secondary Effects of Occupational Composition and Educational Requirements of Employers

To what extent the reaction to the recent tax increase reflects effects of enlightened employer policy is, of course, uncertain. However, those employers whose demands for educationally well-qualified managerial, technical, professional and para-professional employees are high may have contributed to school support indirectly. In almost all cases, in the early years of operation these employers must recruit many of these classes of personnel from other areas.

Plunkett and Bowman found in their more general 1973 study in Appalachian Kentucky that in-movers were more concerned with the quality of local schools than any other group. In Pulaski County the same group was reported by Pulaski County teachers to be the most concerned with the quality of public education, and those with no living experience outside of the area were reported to be least concerned with high quality schools. Of 60 Pulaski District teachers, 45 indicated that in-movers were more interested than either former residents who had returned or people who had never lived elsewhere. Fifty of these same teachers indicated that local people who had not lived elsewhere were least interested.

This appears to suggest that educated persons, especially inmovers, if sufficiently numerous, may be a catalyst of constructive change. They may stimulate reconsideration of the adequacy of many aspects of instruction and supporting services which have long been accepted as "normal" by those with no contrasting experience. By challenging traditional standards of performance, they

[19]All information on the increase of school taxes in the Pulaski District is from oral reports of Mr. Bert Minton, Superintendent, Pulaski County Public Schools, November 28, 1990.

alleviate a condition of general apathy and create awareness of policy issues which have lain dormant for decades.[20]

In addition, there are several other activities which nominally have different purposes, but may create awareness of the importance of education in general, and improvements in educational programs. Illustrative are the following:

1. Kingsford Charcoal, a subsidiary of the Clorox Company, won a national award for activities in support of education. A major part of this was a company-sponsored program of instruction to assist adults in qualifying for the General Education Diploma (GED). Costs were defrayed for both the participating employee and his/her spouse if similarly disadvantaged. The explanation offered was that this boosted morale and performance by eliminating a source of tensions between spouses, since they shared the benefit and could assist each other. This company and most of the other larger employers have supported in various degrees GED programs. In so doing they send an implicit message that education, both personal participation in it and support of it, is important.

2. The bank and hospital, plus several of the more education-oriented manufacturers pay tuition grants for vocational school and community college courses which are relevant to their operations. But to qualify for admission, employees must ordinarily have a high-school diploma or basic communication skills, mathematics, or basic science concepts sufficient to learn what is taught. Those who have been exposed to the subject but did not acquire the knowledge may reasonably question whether the quality of instruction was adequate if they had genuinely tried to learn.

3. The personnel manager of the General Electric Company plant, a former teacher with an M.B.A. degree, will teach an economics course at Pulaski County Senior High School, presumably with only nominal or no compensation.

4. The First and Farmers Bank supports a Personal Economics Program of the American Bankers Association in household financial management. The program is carried on in collaboration with local high schools. In combination with other activities it reinforces the image that education is important.

The central point in these illustrations is that education-related programs may nominally have the selfish purpose(s) of providing more productive personnel for the employer and/or merchandizing the services of the employer. They may, never-the-less, provide a valuable "spill-over" into the social and political climate in which schools operate, an awareness that employers value well-schooled people. This may enhance public demand for improved instruction. This hypothesis is explored in Part II of this report.

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[20]No data are available which test the hypothesis that high proportions of educated workers in the employer establishments of Pulaski County and more supportive policies of major employers has affected employee participation in school support activities. Data from five other school districts are analyzed in Part II.

Potentials for Change in Occupational Composition of Local Employment

The recent shift in policy of the Somerset-Pulaski County Industrial Foundation and other leadership in the community is significant. Current policy reflects an awareness that there are social, political and longer-term economic consequences (externalities) of employment creation efforts. Therefore, financial inducements offered per job created are higher than before. However, this makes possible selection of employer clients whose policies, including those related to education, provide a base for longer term economic development. It at once broadens opportunities for productive and remunerative utilization of developed human capital, and support for community investments in the human capital-building enterprise. Effective strategy entails coordinated development of educational institutions which provide outputs of high quality developed human resources, and development of employment opportunities for those whose capacities are developed. It involves, more generally, an efficient set of strategic public and private services, notably medical services.

The feasibility of this type of policy is not necessarily universal. In this community, unlike most of those in rural Appalachia, there is now in place one school system which provides what appears to be a quite excellent set of scholastically-oriented educational services. These are important to many industrial and services sector investors.

The Somerset Community College and a state vocational-technical school are important assets, as noted earlier. A highly- developed set of medical and health services is also in place, and there is a good highway network and a main trunk rail line serving the community. Comments of manufacturer CEOs and personnel managers and, especially, the hospital personnel manager, indicate that these educational facilities are important to business success. Obviously, a larger rural community with these advantages is likely to be in a much stronger position in recruiting than smaller communities with limited amenities. It can be more discriminating than those which lack these endowments, although the cost of direct attractants is likely to be higher for modernized employers. However, the experience in this county does demonstrate that in some low income rural areas economic development policy which is specifically designed to include concern for long-term institutional development and human capital investments is feasible.

Conclusions

The data obtained in this case study suggest that major employers who presently have, or in the future expect to have, needs for significantly large complements of workers with post-secondary education tend to actively support in a variety of ways enhancements in the programs of public schools. Their stated interests are self-serving, but they are consistent with long-term development objectives of the communities in which they operate. Whether this is generally true in other communities and employer establishments with comparable characteristics is obviously uncertain, but, in the opinion of the authors, fairly probable.

Larger rural communities which have well-developed public and private services-producing sectors have some latitude in their employment creation policies. While costs per job created will in the short-run be higher, the experience of Pulaski county eviences the fact that employers with larger complements of educated personnel can be recruited, albeit at some sacrifice of total short-run availability of jobs for which under-trained local citizens may qualify.

The institution of the independent school district obviously affects the proportion of educated parents in the county district. However, in percentage terms, the number of transfer students who pay tuition to attend Somerset schools has been so small that it has not materially affected the complement of educated parent- voters who have direct interests in the programs of the more rural county system. Owing to the large population size of the county district relative to Somerset independent, even consolidation of the independent municipal district and the county district would change the base of support for education in the existing county district only modestly. The combined system would have proportions of educated persons which would be relatively low, and modestly improved fiscal capability. In addition, to have one well-supported system, such as the Somerset Independent District, provides leverage in recruiting, especially, those employers whose complements of educated personnel are largest, and who, as corporate citizens, tend to support both systems equally.

Part II

ANALYSIS OF FACTORS AFFECTING PARENT PARTICIPATION IN PUBLIC SCHOOL SUPPORT ACTIVITIES

Introduction

Part I has analyzed primarily policies of major employers regarding support for public schools and how they may be affected by their demands for trained personnel. The focus was on their officially-supported efforts to enhance the quality of education offered in the community. However, in Part II attention is shifted to indirect and unofficial aspects of support which may occur owing to the effect of such employers on the local demand for trained personnel. Associated changes in kinds of people who live in the community and constitute the human environment of its various places of employment are potential consequences of economic growth. However, as the data on the occupational composition of manufacturing firms shown in Part I suggest, increases in proportions of educated people associated with manufacturing growth may be somewhat exceptional in low income rural areas. Indeed, manufacturing growth in rural areas such as Appalachian Kentucky has been heavily weighted toward wood products, apparel and other low-wage, unskilled labor-intensive categories of manufacturing. Efforts to attract non-manufacturing basic industries such as those in the finance, insurance and similar services-producing categories have been extremely limited in rural communities, although exceptional instances have been observed.

From a broad array of social science research and commonsense observation it is apparent that some classes of people, especially the educated, are more socially and politically articulate as individuals than others. They know better how to express their interests in good schools and are more actively interested, as well. The study of Appalachian Kentucky by Plunckett and Bowman(1973) was cited earlier. It is one of many which confirm the hypothesis that educated people are more supportive of improvements in schools than those with little schooling. Hence, if the occupational composition of the workforce changes as a result of employment growth, political and social power balances with respect to education may shift. Hypothetically, if, as a result of growth, increased proportions of the population have, themselves, benefitted from education, the support base for education for their children is likely to be broadened and deepened by the direct influence of such people.

In addition, if growth in the total workforce more than proportionately increases opportunities to benefit from education, positive changes in perceptions of students and their parents regarding the value of good schools may also occur.[21] They may come to attach more importance to schools and the quality of their services if there are ample local opportunities to profit from good education. As noted in Part I, there are subtle, although possibly illusory indications of this in Pulaski County,

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[21]"Good schools" refers to those who produce desired educational outcomes. Obviously, the desired outcomes vary in emphasis depending on the interests and ideologies of individuals and groups.

Kentucky. If economic opportunities to use the skills and knowledge are primarily at points remote from the local community, fewer of them will be observed by local people. Hence, the demand for these skills will not be as greatly re-enforced as they would be if these opportunities were in greater supply within the community. It will not be reflected in their expressed public demands for better schools. Demonstrations of these rewards may have particular effects on parent perceptions if they are numerous within their own place of work.

It is to these somewhat indirect effects of the occupational composition of employment growth and how they come about that attention is drawn in Part II.

In analyzing these hypothetical relationships it has been necessary to identify means by which parents may be able to exercise their influence over the quality of education. Information on possible avenues through which to exercise this influence has been used to construct an indicator of the extent to which parents have overtly attempted to influence the quality of education.

Parents, as well as other private citizens, exercise control over the quality of educational services through the franchise, through participation as voters and political supporters in the election of members of the Board of Education. In addition, there are opportunities to participate in various organizations such as parent-teacher organizations, booster clubs, and the like, as well as volunteer assistance for academic competitions and similar non-traditional activities. Finally, there is a broad set of informal activities such as conferences with teachers regarding the scholastic problems and progress of the children who attend school. While nominally designed to assist the individual child, teachers are fully aware of the more general concerns of parents regarding program quality, especially those who take the trouble to make inquiries and solicit assistance regarding their own children. Such expressions of concern and interest provide evidence of appreciation of good teaching on the one hand, and are subtle indications that parents who are so motivated may register complaints in any of several ways if their concerns are not addressed. All of these categories of activities were reflected in the survey questions asked of parents.

Subtleties of the social context and the manner in which these parent concerns are expressed cannot be readily categorized. Indications of parent support of good schools have been limited to categorical statements regarding participation in seven types of activities by individual parents. The list was culled from a larger set suggested by educators, sociologists, and fellow economists. It was culled down to a small set in order to make it feasible to collect the data by telephone survey.

Data Sources

Data on these and other parent characteristics were collected by telephone survey from parents of high school seniors in five schools. One was in Montgomery County, Kentucky, and two each in Wise County and Montgomery County, Virginia.[22] Names, addresses and telephone numbers of parents and guardians were provided by the students surveyed in these five schools. However, the

[22]Each of the two pairs of schools, respectively, in Wise and Montgomery County, Virginia, were assumed to be operating in different community occupational environments. However, overlapping labor markets associated with their attendance zones is recognized as a potential problem in categorizing the general community occupational environment of parents of senior students in these schools.

sample was not completely randomized and varied in proportions of all students (and parents) owing to restrictions on the method of collection of data from students. These were dictated by special circumstances or imposed for various reasons by school administrators.

Analytical Methods and Their Limitations

A total of 529 parents of previously-surveyed senior students provided data which was complete for all variables included in the estimated regression model(Table 5). A list of school support activities was read to each reporting parent. He/she was asked to identify in which, if any, he/she had participated. The dependent variable was the absolute number of these seven school support activities in which he/she had participated. The count of these activities comprised an unweighted scale. It did not necessarily reflect possible differences in importance of the various combinations of activities reported, nor the differences in intensity or degree of participation in the respective activities. (Example: Parent-Teacher Organization membership was weighted similarly whether the parent attended one or several meetings, and whether the parent was an officer or committee member or simply attended general meetings.)

Table 5. Regression Statistics from Analysis of Determinants of Number of Parent Activities Categories in Support of Public Schools in which Parents Participated.

N=529 F=9.703 Prob. > 0.0001 R^2=0.158

Variable	Regr'n. Coeff't.	Standard Error	T	P
(1) Intercept	1.5562	0.16128	9.649	0.0001
(2) Parent Educat'n	0.1900	0.08051	2.360	0.0186
(3) (2)xJob Class	0.0100	0.00326	3.077	0.0022
(4) [(2)xJob Class]Squared		-0.000072	0.000063	
1.140 0.2549				
(5) Prop.Jobs in SIC in High Job Class	-0.0131	0.02358	-0.553	0.5804
(6) Parent Educ.x(5)	0.0016	0.00185	0.840	0.4012
(7) [(2)x(5)]Squared	-0.0000015	0.000001	-0.1964	0.0500
(8) Prop. All Parents in School in High Job Class	3.7777	3.01581	1.253	0.2109
(9) Parent Educ.x(8)	0.3071	0.24158	1.271	0.2042
(10)[(2)x(9)]Squared	0.0083	0.01070	0.774	0.4395
(11)Distance Home to School(miles)	-0.0523	0.01937	-0.270	0.7871

Tested in the model were hypotheses relating to four basic hypothetical determinants of parent participation. These were (1) the grades of school completed by the parents, (2) the proportion of employees in the workplace occupying positions in which post-secondary education would be either required or highly desirable, (3) the proportion of all surveyed parents in the community (attendance zone) who occupied education-demanding types of positions and (4) the distance between the home of the parent (and student) and the high school attended by the senior student.

The occupational composition of the workforce was an indicator of the concentration of demonstrations of opportunities to economically profit from having good educational qualifications. It was assumed that if more education were favorably regarded, higher quality education would also be favorably regarded. In a work establishment which has 2.0 percent of all employees occupying education-demanding occupations, it would be evident to everyone that even appropriate post-secondary education would increase the probability of gaining access to a better-paying job in that place of work extremely little. Another plant with over 20 percent in such occupations would evince a significantly high probability that added education of appropriate types would have resulted in having access to a better job in that plant.[23] Similarly, a heavy concentration in the community of people with jobs having high educational requirements would provide a relatively intense demonstration of the general economic value of education. For example, a community dominated by a major university and higher technology manufacturing, such as Blacksburg, Virginia, would have a heavy concentration of such 'demonstrations' relative to the two surveyed high schools in Wise County. In Wise County coal mining is dominant, and that industry averages about 10 percent in the managerial, administrative, technical, professional and paraprofessional occupations, nationally.

In addition to the four primary variables, three cross-product terms were specified in quadratic form. One cross-product was between the parent's educational attainment and the scale value of the parent's occupational class. It reflected the hypothesis that the value attached to good quality education of children would depend on whether the parent's occupational class was low or high relative to his/her own education. Parents with relatively high educational attainment, but unskilled, low-wage jobs would be unlikely to attach as high importance to either the amount or the quality of education for his/her children as others whose jobs more amply rewarded possession of these qualifications. Vice versa, hypothetically, those whose educational qualifications were high, and their job class also very high would value good education highly. We speculated that such parents would quite actively participate in supporting efforts to improve schools. But, so-called 'self-made' men and women who had achieved much with very modest investments in education could be expected, owing to their own experience, to undervalue the potential of contribution of education to the economic opportunities of their children.[24]

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[23]This extremely low proportion was actually found in an apparel plant in Pulaski County, Kentucky. See Part I, Table 4. The one with over 20 percent was also in that community. Some services- producing establishments, such as the regional hospital there, have above half of all employees in that category.

[24]The occupational class variable, itself, was intentionally omitted as an independent variable. The rationale was that costs of participation are nominal and that occupational class is primarily a proxy for earnings. Hence, its effect on parent participation would be primarily a result of its effect on appraisal of the value of their own education. This is captured by the cross-product term.

The other two pairs of cross-product variables were designed to take into account hypothesized differences in the effects of workplace and community-wide differences in occupational environment of the workforce resulting from differences in their educational background. Differences in the parents' own education would appear likely to condition responses to the differences in this environment. That is, the person who is, himself or herself, already amply educated and well-remunerated is unlikely to have school support-related activities greatly affected by the occupational environment of the workplace or of the community. He/she will know from personal experience its importance and be relatively unaffected by observations of others.

The occupational class of the parent was scaled judgmentally and covered all classes of occupations and classes of employer establishments. The criterion was the likely income associated with these occupational classes. Sensitivity about revealing personal income, especially in a telephone interview, was responsible for using this admittedly crude proxy. Great variation would be expected in, especially, the management and administration categories. The management of a very small, and low-technology business would require less-sophisticated skills than a larger high-technology enterprise or one that required a great deal of knowledge of merchandising and public relations strategies. In addition, the ordinal scale has potentially different income intervals between classes. This will possibly increase the error terms of the slope coefficients and the total regression. Bias in the estimates of the regression coefficients for both linear and squared cross-product terms in which it is a component is a possibility which cannot be excluded.

The occupational composition of the workplace was categorized according to the estimated proportion of occupations normally requiring some post-secondary education (e.g. managers, administrators, professional workers, technical workers and paraprofessionals in manufacturing industries). This was crudely estimated from national averages of proportions in individual occupational classes for two-digit SIC's. It is likely to result in an upward bias in absolute estimates in regions with low average educational attainment and low wage rates. Proportions in these occupations for the same two-digit SIC are generally lower in Kentucky than for the nation as a whole(Kentucky Human Resources Cabinet, 1985)(U.S. Dept. of Labor,1985). Moreover, individual employers in the same SIC vary widely in these regards.[25]

The community-wide environment was categorized by reference to the reported occupations of the parents who responded to the telephone survey. Parents of high-school seniors would be predominantly in the 40-55 age group. No direct test for differences in selection bias among communities was feasible.

As noted above, the dependent variable is the number of activities reported (0-7) from a set of seven pre-defined categories.

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[25]Illustrative is rather highly automated Somerset, Kentucky, hardwood flooring manufacturer. It is included in the observations shown in Figure 1 and in Appendix 1. Lumber and Wood Products average less than 10 percent in the high-status occupations nationally, while this plant has about one-third, and over half of its total work force has some post-secondary education.

Interpretation

The regression statistics in Table 5 show that a relatively low proportion of the variance in number of school support activities of the parents is explained by the independent variables. The behavior of parents relative to school support activities is either poorly measured, the explanatory variables poorly measured, and/or the behavior of parents is largely explained by other determinants which were not included in the regression.[26]

An interpretation of the regression coefficients and their reliability statistics follows:

Parent Education--Years Completed. The regression coefficient evinces a rather significant association between the education of the surveyed parents and their participation in the seven classes of activities. The association is more pronounced when their occupation is commensurate with their education, as shown by the significant joint contribution of the linear and squared cross-product terms, which were evaluated using the F test.[27] The evaluation of their joint contribution is needed since the linear and squared cross-product terms are significantly inter-correlated (r=.57), and their coefficients relate to a single curvilinear functional relationship. Invalidly rejecting either the curvilinearity hypothesis or the hypothesis that the interaction significantly explained differences in parent activity levels is more probable when this is true. Therefore, simulations included coefficients for both terms even though the squared term is significant at only P=0.25.

The simulation results are presented graphically in Figures 2A and 2B. They are, in every respect, consistent with the hypothesized relationships. The regression estimates indicate that those with relatively high levels of education tend to participate more intensively in such activities than those with lower levels. This is especially true when they have jobs which are commensurate with their education. With mean job class of about 4 (3.85), the predicted (average) activity level of parents with 12 grades of schooling is approximately 0.6 activities higher than for a parents with only eight grades. Estimated average rates of participation of those with four years of college are higher than those with high school graduation equivalency (12 grades) by 0.8 activities.

The values of the coefficients imply that the contribution of parent education to the level of parent support activity is greater for those with high status jobs than those who do not have them. Vice versa, those with low education levels but high status jobs are less-supportive than those with similar levels of education and low occupational status.

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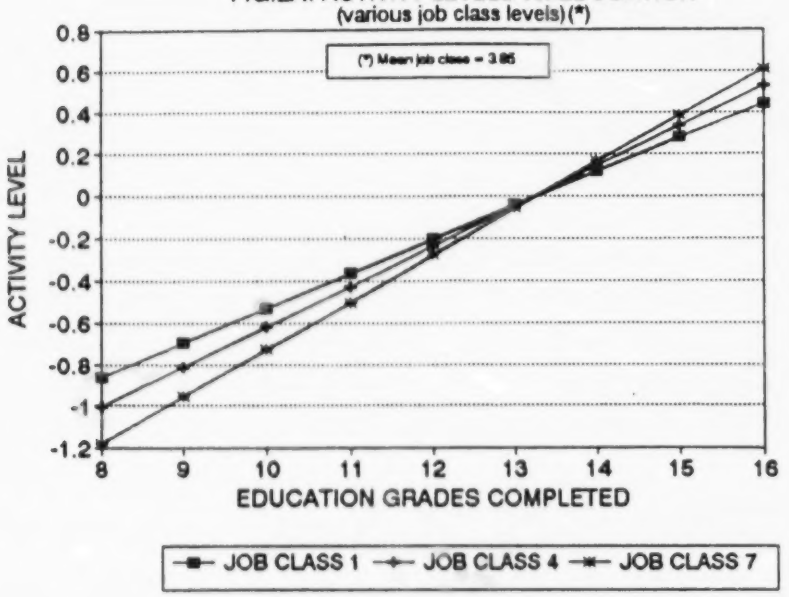
[26]As noted above, the proxy for exposures to demonstrations of the value of education in the workplace is very crude owing to heterogeneity among two-digit S.I.C.'s. In addition, it is recognized that the occupations classified as education-demanding ones include a range from those which require only a year or so of training to those such as medical doctors which require the equivalent of over eight years of post-secondary education.

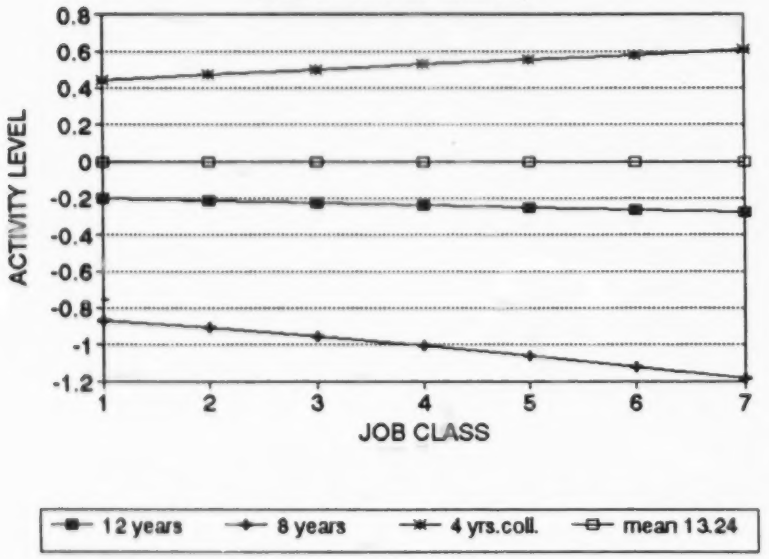
[27]The fact that occupational class is an ordinal classification, without necessarily equal intervals with respect to wages and salaries (and value of fringe benefits) would tend to inflate the error term for the coefficient estimates for the cross-product terms of which it is one component. Therefore, its explanatory power is possibly understated by its contribution to the mean square regression. It should also be emphasized that the regression coefficients for the cross-product terms are also very probably biased, but we have no way of knowing how or to what degree they are biased. Their interpretations should be viewed with that qualification in mind.

FIG.2A: ACTIVITY LEVELS vs. EDUCATION
(various job class levels)(*)



Note: Activity levels are expressed as deviations from mean values associated with various education and job class values.

FIG.2B: PARENT ACTIVITY LEVEL/JOB CLASS
(Various Educational Levels)



These results are quite consistent with the general hypothesis on the effects of parent education on school support activities. They also support the view that their own occupational status affects how parents view the importance of good schools. Personal job status has a significant impact on the association of education with parent activity levels. However, the level of parent education appears to importantly affect the level of school support activity even for those in a low occupational class.[28] Eight years of additional education beyond grade 8 (4 years college) results in an estimated 1.3 additional activities for those with the lowest occupational class level. However, it increases to 1.8 for those of the highest occupational class.

Associated with an increase from the lowest to highest occupational class is an additional 0.168 activities for those with four years of post-secondary education. Associated with an increase in occupational class from 1 to 7 is a decreased activity level (-0.3) for those with 8 grades of schooling.

Proportion of High Status Occupations in Employer SIC.

The cross-product term Years of School Completed x Proportion of High Status Jobs in the SIC of the parent's employer is included as an independent variable in quadratic form. With these terms in the regression, the slope of the regression line relating the proportion of high status jobs to parent support activity level is non-significant and has a negative sign. Further, when the implications of this coefficient and those of the quadratic cross-product term are evaluated through simulation, the negatively-inclined relationship is much more pronounced. With education held constant at 8, 12 and 16 grades completed, simulated expected values for activity levels show a highly negative slope of the relationship between proportions of workers in the workplace with high status occupations and parent school support activity levels. For parents with 16 years of schooling, the estimated number of education support activities decreases as the proportion of higher job class employees in the SIC of the employer increases. For parents with 12 grades and 8 grades of schooling the estimated relationship is even more negatively inclined.

The significant slope of the squared term of the quadratic cross-product relationship suggests that significant confounding with unspecified variables may be involved. In any event, there is no empirical support for the hypothesized positive relationship between the concentration of high status jobs in the community and the general level of participation in school support activities by parents.

Community-Wide Proportion of Parents with High Status Occupations.

The proportion of high status occupations among parents of seniors in the district as a whole appears to have only a low-significance association with participation levels of these parents, by itself. The coefficient is not significantly different from zero at usual standards of reliability. Furthermore, the joint contribution of the quadratically specified cross-product variable, proportion of parents with high status occupations x parent education was not significant as measured by an F test.

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[28]Lines converge at average education, 13.3 years because no independent effect of occupational status is assumed in the specification of the model.

Many unique historical events can shape attitudes toward support of public education, and we are, in effect, contrasting the occupational environment of only five school districts, all with somewhat different historical antecedents. Never-the-less, these five districts represent a large range of occupational environments, varying from Blacksburg, Virginia, with the large population of highly- educated university faculty and supporting staff, to the two districts in Appalachian Virginia with coal mining as a primary economic base. Therefore, it seems unlikely that a narrow range of observations on the community occupational environment is responsible for the nonsignificant regression coefficients.

Road Distance from Home to High School.

Many, if not most activities in support of good schools require attendance at activities in or near the school. Therefore, this variable was expected to be negatively associated with participation in school support activities. In no iteration of the model was there a significant association and the sign of the coefficient changed with re-specification. In part, this may have been a result of a concentration of students in the municipality and immediately surrounding area as evinced by an average distance of only four miles. However, it also appears possible that transportation is so inexpensive and rapid that travel distance has little effect on parent participation rates.

Conclusions

The significance of both the education of parent variable and the cross-product term between education of the parent and his/her occupational class status suggest important factors which are germane to development strategy, especially job creation and retention strategy. They are as follows:

1. The infusion of larger numbers of workers with high levels of education and retention of higher proportions of local workers with high levels of formal education will re-enforce support for good quality schools. It will do so through the overt direct participation of these educated parents in school support activities. In a word, such people tend to be education support activists. Our evidence from Pulaski County(Part I) and the evidence from an earlier study by Plunkett and Bowman(1973) suggest that this will be especially pronounced if they are non-natives with respect to the region. The views of "outsiders" may be a bit threatening, but they may have important value to the long-term human capital development enterprise.

2. Benefits of more and better education are to a large extent lost to the community when local employment opportunities for the educated are not available. Out-migration of local people with highly-developed capabilities is a consequence of when this is true, and has been documented in many studies. When educated local people migrate to other communities, the value of their direct economic contributions is largely lost. Of equal or greater long-run importance, their potential contributions to support for improved schools (and possibly other community services) is also lost. Conversely, developing services-producing and manufacturing industries with larger complements of educated personnel will enhance local opportunities and serve to stem this outflow of valuable social and political, as well as economic resources. The evidence from this study verifies the general observation that educated people utilize more fully than others opportunities to influence policies regarding the provision of public services. This is true with respect to education support activities in the three counties surveyed in this part of the study.

3. While a high concentration of education-demanding, high-status jobs in the workplace or in the community-at-large does not appear to positively affect the support activity levels of individual parents, the direct effect of having a large complement of educated persons living and working in the community does. Retention within, and infusion into the community of larger proportions of educated parents will favorably affect support for good public schools. Such parents are more generally predisposed to participate in activities which support various aspects of public school functions, presumably those which they perceive as having salutary effects on school performance. Their effect on the processes of governance of the system (and probably on the more informal re-enforcement of progressive efforts of teachers and school administrators) will tend to be disproportionate to their numbers. This will be true, if for no other reason, because their more highly developed communications and leadership skills will enhance their ability to influence other citizens and influence decisions of school officials and classroom teachers.

What seems to be implied is the desirability of a general strategy which concurrently increases (1)educational attainment and learning achievement of young people, and (2)local opportunities for use of their developed capabilities. Their hypothesized interdependency is supported by the evidence supplied in this study. Such a strategy is being implemented in Pulaski County, Kentucky, as noted in Part I of this report. Other communities may be following the same strategy, but the authors are not aware of any in the impoverished counties of rural Appalachia.

Part III

A GENERAL ANALYTICAL AND PUBLIC POLICY OVERVIEW

The results of the two studies which are presented in Part I and Part II are clearly provisional in nature. The individual case example in Part I is an insufficient ground for even generalizing with confidence to other large population size rural counties, but the evidence is at least highly suggestive. Its significance for local development strategy also depends on the availability of a policy alternative. That alternative, selective recruitment of employers which will have large complements of well-schooled workers, is probably not available to communities which are unfavorably situated locationally and which have population size insufficient to support a well-developed service infrastructure. In particular, selective recruitment of employers with a view to enhancing complements of educated workers may not be feasible for communities without access to vocational, technical and higher education facilities.

Among firms of small employment size, it seems unlikely that potential benefits to them will justify important financial or personnel contributions in support of public education, except, perhaps, if this is part of an organized joint effort by several employers. No data are available on support activities of individual small establishments or organized group efforts by them. However, even if small employment size establishments with high proportions of educated employees do not directly support improvements in public education, they do so indirectly by increasing the proportion of educated people in the community. This will shift power balances in the direction of more support for public education.

The data problems encountered in testing some of the hypotheses in Part II suggest the possibility of rejecting valid hypotheses regarding the effects of a greater concentration of persons with higher levels of education and associated earnings in the workplace and community. Specifically, the evidence provided no support for the view that levels of support by individuals will be affected by the presence of higher proportions of educated people in the workplace or community. Those with greater exposure to evidence of the value of education in the community or workplace did not appear to participate more than those with less exposure. Whether with improved data and methods this finding would be contradicted is problematical. However, the test of these hypotheses was hampered by deficiencies in both regards, a situation which is usual for exploratory efforts in new subject-matter areas. (Possible means for addressing these problems are noted in Appendix 2.)

On the other hand, evidence presented in both Part I and Part II suggests that the infusion and retention within a community of people with higher educational qualifications will broaden and deepen support for what they regard as improvements in public schools. But to accomplish this, recruitment or local development of employers who have a preference for, and reward achievement of high levels of education will be required. To recruit such employers will be costly. Larger community investments, both in service infrastructure and direct inducements, will probably be necessary and the jobs which they create will be of relatively little value to individuals whose deficient qualifications make the jobs inaccessible to them. To enlist their support will require appeal to their interest in the well-being of succeeding generations, especially their own children and grandchildren. Those existing employers with a small complement of educated workers and no prospect of technological changes which will increase needs for more will benefit greatly from neither enhancement of local job opportunities, nor better schools.

To continue to recruit traditional industries which require mainly an ample supply of very low cost labor will probably create more jobs per dollar of public outlays in the short run. However, it is precisely these technologically backward industries which are most threatened by competition from producers in developing countries. Such countries have even larger supplies of such labor than Appalachian Kentucky.

Typically, manufacturers in developing countries are not limited by minimum wages, collective bargaining, Unemployment Insurance, Worker's Compensation and stringent application of environmental protection laws. Hence, these classes of manufacturing in the United States are among the most footloose and vulnerable to foreign competition. Moreover, owing to their limited needs for trained personnel and their vulnerability to off-shore competition, as "corporate citizens" such industries seem likely to mainly exploit the already existing supply of under-developed human resources, much as the colonial powers did in their colonies in years past. The evidence suggests that such low-skill industries contribute little to the development of human capital and the local services infrastructure which forms a base for long-term economic growth and improved economic well-being of the community. An important conclusion is implied. As long as such unskilled labor-intensive firms are the primary component of the economic base of the community, there will be little support or leadership from the basic industry sector to encourage support for improvements in the quality of public schools and for graduating more and better students. At least the survey of major manufacturers in Pulaski county provides support for this view. And if these employers dominate the labor market, those who do invest in their own education will continue to find that employment opportunities commensurate with their education are mainly external to the community. If this continues, the local benefits of public and private contributions to the development of their capabilities will continue to be lost to other communities to which the educated will migrate in order to access more opportunities to profitably employ their capabilities.

It is probably not feasible to recruit employers with high proportions of educated manpower in many communities. That Pulaski County, Kentucky, has been successful demonstrates that there are some opportunities to employ a selective recruitment strategy. However, on the basis of the limited evidence from this pilot study, those employers which have been recruited appear to have been attracted to the community owing, in part, to the high quality college preparatory programs of the independent municipal district, community facilities for post-secondary education and its highly-developed general services infrastructure. The latter appears to have resulted from the somewhat fortuitous gradual emergence of Somerset as a regional trade and services center. Similar advantages are not uniformly available to larger rural communities, much less to the smaller and more isolated ones. In view of the competition from off-shore producers for the traditional low-skill labor-intensive manufacturing industries, the concentration of growth in such regional trade and services centers, and the contraction of the other communities in their commuter hinterlands cannot be ruled out as possibilities. Even in larger rural communities, growth in those categories of activity which provide a base for development of the human capital resources required to fuel long-term development is not likely to occur spontaneously. Deliberate policies which exploit the linkages between the human capital development process and the creation of greater opportunities for rewarding employment of educated workers may be essential. Selective employment-creation and retention efforts aimed at modernized employers with more educated personnel are suggested as possible means when this is likely to be feasible fiscally and effective programmatically.

There are, additionally, analytical implications of the observations which have been made in this study. They suggest that community and regional development is a multi-faceted and multi-generation process. It is one in which dynamic interactions between the economic enterprises of the community and

the functioning of its institutions must be recognized if effective public policies are to be designed. The economic politics and socio-economics of human capital formation and the institutions which support it must be comprehended in effective economic development strategy. A more general, rigorous and complete study of the relationships evaluated in this case analysis seems to be justified. If the findings of these two studies are validated by more general analysis, they may be strategic to the design of effective development strategies in other communities and regions. The now seriously deficient processes of human capital formation will be more readily converted into progressive ones if the backward linkages between the job-creation process and the human capital formation process are recognized.

Even in these communities, complex and complementary socio-political, educational, institutional and economic relationships must be understood if success over the long term is likely. Public support for good public schools is among the most important externalities of the employment creation enterprise. Evidence provided by economic analyses, even those conducted before the wave of technological change of the last two decades, demonstrates that returns on investments in education are quite high compared to investments in tangible capital investments (See, especially, the studies of Becker, 1960). However, they do not recognize that, especially in a public enterprise such as education, the level of investment is not sensitively responsive to the productivity of the output. Apparently a progressive and perceptive socio-political environment must be engineered as part of a general development strategy if those potential long-term contributions are to be reflected in efficient levels and kinds of public investments in schools and schooling.

Until now, with relatively few exceptions, only the productivity of investments in human capital has been recognized in research on economic development. The political, informational and behavioral externalities of labor utilization have been almost totally ignored. But a successful long-term development strategy requires more than recruiting employers which will utilize inferior quality human capital resources. It must be one which simultaneously develops (1) a public sector demand for schools which will build more productive human resources and (2) the means for the productive employment of these human resources. The politically appealing, short-run 'job count' criterion of economic development policy and politics is a relatively bankrupt one. It must give way to a more sophisticated and analytically complex policy analysis process. The criticism of Kraybill and Dorfman (forthcoming, 1992) of the use of essentially static and short-run analyses to analyze what are, in fact, long-run, multi-generational processes is based on an important insight. Although it poses very difficult problems in both research and public policy design, to fail to address these problems virtually precludes success in development efforts.

That the problem of deficient performance of public schools is widespread in virtually all regions is evident from test score and dropout rate data which have been reported in most major news media. But it is a much more serious problem in regions of chronic poverty such as Appalachia. As the information supplied in this study illustrates, to develop adequate support and appropriate kinds of support for public schools involves a complex set of economic, social and political relationships. The apparent effects of the structure of employment opportunities on support for schools are exemplar of that complexity. Issues of long-term strategy involving demographic, hence, social and economic consequences of fundamentally economic policies must be comprehended in charting an effective long-term economic development program. Simple growthmanship is not identical with development planning!

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Appendix 1

School Support Activities of Selected Major Manufacturing and Services Producing Employers in Pulaski County, Kentucky, Systems, 1990-91 School Year.[a]

Activities	Employer Number							
	1	2	3	4	5	6	7	8
	P=Pulaski County District; S=Somerset Independent District.							
Financial support or equipment for:								
Academic activities		P,S	P,S	P,S	P,S	P,S	P,S	P,S
Athletics or other extra-curricular			P,S	S	P,S	P,S	P,S	P,S
Scholarships or awards for Scholastic Achievement			P,S		P,S	P,S	P,S**	P,S
Academic competitions			P,S		P,S	P,S	P,S	P,S
Direct Personnel Support by Company Officials, e.g., Speakers, Career Days, etc.	P	P,S		S	P,S		P,S	P,S
Indirect Support through:								
Release time of employees for school support activities	P,S*	P,S		P,S	P,S	P,S	P,S	P,S
Encouraged volunteer tutoring by employees.							P,S**	P,S
Encouraged participation in Parent-Teacher Org.				P,S	P,S	P,S	P,S	P,S
Encouraged participation in athletic, band, and other "booster" clubs.				P,S	P,S	P,S	P,S	P,S
Encouraged active support of Board of Education candidates who support school improvements.								
Total number of classes of support activities	2	5	6	7	8	9	10**	11
Proportion of employees with some post-secondary ed.	10%	15%	11%	18%	68%	88%***	50%	75%
Proportion of positions usually requiring post-secondary education or equivalent experience.[b]	5%	4%	9%	10%	32%	75%***	20%	52%

*Supervisory and administrative employees only. **Parent conglomerate provides scholorships. ***A high proportion, especially in this firm, are hired without post-secondary instruction, as such, but with understanding that further instruction in relevant subjects will be required to insure retention. Most post-secondary instruction not degree-oriented.

[a]Information voluntarily released by employer representative--no guarantee of confidentiality.

[b]Includes managerial, administrative, technical, professional, paraprofessional (plus technical secretaries) which would normally require some post-secondary formal instruction or equivalent experience.

Appendix 2

Analytical and Data Problems and Means for their Alleviation

Since this is a pilot project, a short commentary on major analytical and data problems is offered in the hope that, if others wish to build on the experience from this study, insights gleaned from this experience may prove helpful.

1. Measures of Effective Participation by Parents and Employers.

Establishing that there is a reliable relationship between overt activities with respect to support of education and effective enhancement of the quality of educational services, i.e., those which are likely to enhance learning rates of children, presents a formidable issue. Unlike the learning rates of children which are captured by elaborately tested scales, there are apparently no reliable indicators of the contribution of political and social inputs to teaching program effectiveness. Even the value of the various learning rate scales is controversial, since, among other things, such products of a learning process as creativity and inquisitiveness escape the meshes of conventional measures. However, in this case the variable of interest is a product of a composite of capabilities of teachers, curriculum design and methods, teaching materials and aids and facilities for instruction. In addition, there is the important element of the administrative and political environments which re-enforce motivations of teachers to effectively apply facilities and materials, and both apply and enhance their capabilities as teachers. However, the elements of this composite contribute according to no known functional relationship to the learning process. We offer the suggestion that insights from political sociology and political psychology may prove useful, but the evaluation of relevant technical information in these fields, if such exists, has not been attempted owing to deficient time, and resources.

2. Measures of the Workplace Occupational Environment.

As noted in the text of Part I and Part II, the data on occupational profiles of particular two digit SIC's are seriously inadequate owing to the differences among firms in technologies and personnel requirements. This is even true for three and four digit SIC's. In addition, it appears to be a plausible hypothesis that employers of very small size will comprise a much less dominant part of the total environment of a worker than would an establishment of large size and similar occupational structure.

A possible improvement would be to do a telephone survey of employers. The occupational composition and educational qualifications of those in such occupations could be estimated with comparative precision (as was done in the case study reported in Part I of this report) as well as measures of workforce size.

Carefully designed batteries of questions could be used to ascertain whether perceptions of people in various workplace and community environments are different. The difficulty of constructing reliable verbal proxies for behavioral predispositions which are relevant to school system improvement is fully recognized. However, if carefully structured and, preferably, tested against behavioral evidence in closely related contexts, this would bring to the surface latent attitudes that may condition voter responses to local policies. This would be especially important with regard to tax referenda and other fiscal measures. The passive acceptance of a very major increase in school taxes in Pulaski County, a district which has been very substandard in regard to local financial effort, suggests that attitudes of voters were

relatively accepting of the additional taxes. This was true even though, insofar as we were able to determine, no overt initiatives had come from citizen groups in recent years. Our measure of overt participation may fail to capture these differences that are not overtly expressed and lead to rejection of a valid hypothesis.

In addition, tying the measure to the environment of only the current employer, was a necessary cost-reduction expedient. A several year long occupational history would appear be required to provide a measure of the occupational environment over a length-of-run sufficient to condition perceptions of this kind significantly. In addition, in communities in which change has been rapid, a measure of community environment over a period of longer duration would be more reliable. The rapidly transformed economy of Pulaski County, Kentucky, is suggestive of this possibility.

Use of econometric estimates of incomes associated with years of education among classes of communities would possibly be a more reliable basis for classifying the community environment than the proportions of workers of varying occupational class and education. That is, if the market for developed human capital is imperfect over geographic space, the number of opportunities to employ developed capabilities may be proportionately low in communities with low-wage industries. However, the economic rewards to educated local people with equivalent credentials and occupation may be lower as well. Anecdotal evidence suggests that in-moving employers must ordinarily pay a premium to induce non-native people to move to rural communities from urban locations, even though costs of living are lower.

3. The relatively highly-educated person typically exercise greater leverage per individual on public service delivery systems than those with modest credentials. Knowledge may, indeed, be power! This is reflected in the leadership roles which educated people disproportionately occupy, as well as the number of organizations and activities in which they at least nominally participate. Some measure which captures both the intensity of participation, and the power that various roles confer upon incumbents is needed. Otherwise, the impact of participation of various classes of people on the quality of educational services delivered in school systems cannot be reliably evaluated.

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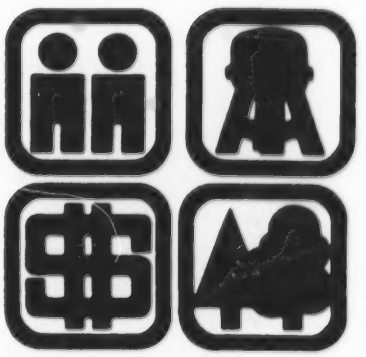

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